On the systematic position of some Palaearctic Pyraustinae (Pyraloidea, Crambidae)

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Summary. Re-examination of type material of *Metasia ossealis* Staudinger, 1880 **stat. rev.** and *Stenia ferrealis* Hampson, 1900 revealed nomenclatural corrections of these two taxa. *Metasia ossealis* **stat. rev.** does indeed belong to the genus *Metasia* and is resurrected from synonymy with *Palepicorsia ustrinalis* (Christoph, 1877) **comb. rev.**, of which *Palepicorsia* Maes, 1995 **stat. rev.** is resurrected from synonymy with *Achyra* Guenée, 1849 and *P. ustrinalis* **comb. rev.** is again combined with this genus. Diagnostic characters of *Palepicorsia* and *Achyra* are given. *Pyrausta ferrealis* (Hampson, 1900) **comb. n.** is removed from *Mardinia* Amsel, 1952 **syn. n.** and the latter is synonymized with *Pyrausta* Schrank, 1802. Genitalia and tympanal organs of *Metasia ossealis* and *Stenia ferrealis* are illustrated.

Zusammenfassung. Die Nachuntersuchung von Typenmaterial von *Metasia ossealis* Staudinger, 1880 **stat. rev.** und *Stenia ferrealis* Hampson, 1900 ergab nomenklatorische Korrekturen dieser zwei Taxa: *Metasia ossealis* **stat. rev.** gehört tatsächlich zu der Gattung *Metasia* Guenée, 1854 und wird aus der Synonymie mit *Palepicorsia ustrinalis* (Christoph, 1877) **comb. rev.** sowie *Palepicorsia* Maes, 1995 **stat. rev.** aus der Synonymie von *Achyra* Guenée, 1849 herausgenommen und *P. ustrinalis* **comb. rev.** wird wiederum mit dieser Gattung kombiniert. Diagnostische Merkmale von *Palepicorsia* und *Achyra* werden beschrieben. *Pyrausta ferrealis* (Hampson, 1900) **comb. n.** wird aus *Mardinia* Amsel, 1952 **syn. n.** herausgenommen und diese Gattung mit *Pyrausta* Schrank, 1802 synonymisiert. Die Genitalien und Tympanalorgane von *Metasia ossealis* und *Stenia ferrealis* werden abgebildet.

Resumé. On a étudié le matériel-type de *Metasia ossealis* Staudinger, 1880 **stat.rev.** et de *Stenia ferrealis* Hampson, 1900. On propose les changements nomenclaturaux suivants: *Metasia ossealis* **stat. rev.** fait bien partie du genre *Metasia* et n'est pas synonyme de *Palepicorsia ustrinalis* (Christoph, 1877) **comb. rev.**; le genre *Palepicorsia* Maes, 1995 **stat. rev.** est enlevé de la synonymie d'*Achyra* Guenée, 1849. On donne les caractères diagnostics de *Palepicorsia* et *Achyra. Mardinia* Amsel, 1952 **syn. n.** devient synonyme de *Pyrausta* Schrank, 1802. On illustre les génitalia et les organes tympaniques de *Metasia ossealis* et de *Pyrausta ferrealis* (Hampson, 1900) **comb. n.**, l'espèce-type de *Mardinia* **syn. n.**

Key words. *Metasia ossealis, Palepicorsia ustrinalis, Achyra, Stenia ferrealis, Mardinia, Pyrausta*, lectotype designations, synonymy

Introduction

Turkey with its high, diverse biota provides a very rich fauna of Pyraloidea that is far from well examined. Many systematic problems remain to be solved.

In 1995, I considered *Metasia ossealis* as a junior subjective synonym of *Palepicorsia ustrinalis* (Christoph, 1877) based on (wrongly identified) specimens at The Natural History Museum London (Maes 1995). The type specimens of *M. ossealis* could not be traced at the time of my publication but were later recovered by Dr. M. Nuss and kindly put at my disposal. The study of the type material showed that my results from 1995 need to be revised. In addition, Speidel (1996) synonymised *Palepicorsia* Maes, 1995 with *Achyra* Guenée, 1849 which contradicts my own results while studying *Achyra* species on a world scale.

Another species, *Mardinia ferrealis* (Hampson) proved to be wrongly placed after studying the genitalia and tympanal organs.

The material was dissected following methods described by Maes (1985). The nomenclature of the structures (genitalia and tympanal organs) follows Maes (1995).

***Metasia ossealis* Staudinger, 1880 stat. rev.** **(Fig. 1, Pl. 1 Fig. A, B, C, D)**

Staudinger, 1880:182 (*Metasia*); type locality: Amasia.

Material examined. – Lectotype ♂, pink label "Origin.", yellow label "Amasia | Joh.", white label "ossealis Stgr.", white label "30/4", "Lectotype | Metasia ossealis Staud. | det. K. Maes 1998" (hereby designated), (MNHU); Paralectotypes: ♂, Mardin 97 Man. (abdomen missing) (MNHU); ♀, Mardin, K. Maes Gen. Prep. ♀20415 (MNHU); ♂, Amasia, Genit. unters. Nr.1481 Zool. Mus. Berlin (MNHU); ♂, "270" K. Maes Gen. Prep. nr. ♂20414 (MNHU); ♂, no data label, K.Maes Gen. Prep. nr. ♂20426 (MNHU); ♂, no data label (MNHU).

Fig. 1. *Metasia ossealis* Staudinger, Lectotype

Diagnosis. – Fibula very robust and broad, corpus bursae without signum.

Description. – External characters: ground colour light brown to whitish-brown. Antemedian and postmedian band dark brown; median field lighter in colour as ante- and postmedian fields. Hind wings much lighter coloured as fore wings.

Head. – Frons rounded, labial palpi porrect, long triangular; maxillary palpi well developed, clearly visible; antennae filiform in females, unipectinate in males.

Wings. – Wingspan:18–23mm; frenulum hook simple in males and females; retinaculum in both sexes consisting of a series of bristles near the Cu stem, males have an additional retinaculum hook originating from the Costa.

Tympanal organs. – Praecinctorium bilobed; tympanal organs invaginated but with fornix tympani above the venula prima; bulla tympani widely separated; no saccus tympani; specific sclerotizations on zona glabra tympani lacking.

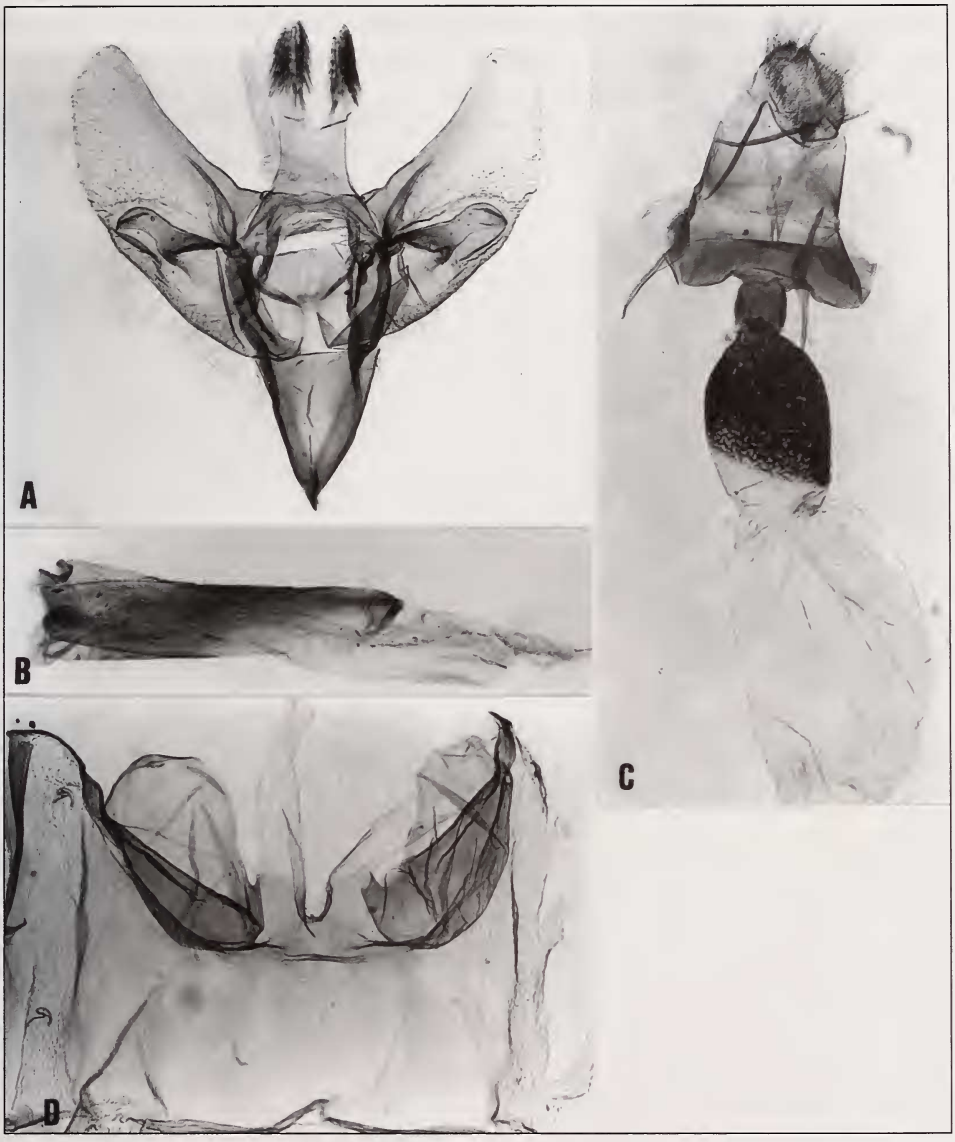
Male genitalia. – Typical *Metasia* genitalia: uncus bilobed, dorsally with modified setae (flattened, terminally bilobed); ventral part of valva rounded towards the apex, costa straight; spoon-like fibula, rather broad and extending to the ventral side of the valva; saccus strongly developed. Aedeagus straight, broad without spicula or a cornutus.

Female genitalia. – Ostium bursae broad but shallow; antrum strongly sclerotized; no clear ductus bursae present; apical part of corpus bursae modified: proximal part more sclerotized than distal part and bearing folds, this part could be considered as the colliculum; distal part of corpus bursae membranous, signum lacking.

Life cycle. – Unknown.

Distribution. – Mardin [Turkey].

Remarks. – The characters studied clearly show that Staudinger placed the species correctly in the genus *Metasia*, and the species is resurrected here from synonymy with *Palepicorsia ustrinalis*.



Pl. 1. *Metasia ossealis* Staudinger. **A** – male genitalia, K. Maes Gen. Prep. ♂20414; **B** – aedeagus; **C** – female genitalia, K. Maes Gen. Prep. ♀20415; **D** – tympanal organs.

Palepicorsia Maes, 1995 stat. rev.

Type species. – *Botys ustrinalis* Christoph, 1877, by original designation.

Palepicorsia ustrinalis (Christoph, 1877) comb. rev.

Botys ustrinalis Christoph, 1877: 274–275.
Scopula palmalis Swinhoe, 1884: 524.
Metasia emiralis Oberthür, 1888: 36, pl. 6 fig. 33.
Metasia excavatalis Ragonot, 1892: 294, pl. 3 fig. 14.

Remarks. – In the checklist of the European Lepidoptera the generic name *Palepicorsia* is placed as a junior synonym of *Achyra* Guenée, 1849 stating that "the morphological differences indicated seem not to be sufficient for a separate genus" (Speidel 1996: 326). Older authors like Hampson made generic combinations based on external characters. This has caused quite some confusions with genera like *Achyra* Guenée, 1849 and *Loxostege* Hübner [1825]. True *Achyra* species were until recently generally placed under *Loxostege.* Even at this moment a complete view on world basis of the genus *Achyra* is not achieved and more species will probably be placed in this genus as soon as the genitalia become investigated. The object of these remarks are to clarify the present definition of *Achyra.* A phylogenetic analysis of this genus is beyond its present scope and has to be prepared in the context of all pyraustine genera on a world basis, which are approximately 187 valid genera K. Maes, unpublished).

Externally, *Palepicorsia ustrinalis* looks like certain species of the genus *Achyra.* This may be due to an adaptation to similar habitats. Differences are obvious when it comes to the male genitalia: the uncus, sella and editum on the valva and the transtilla are different in structure. Typical *Achyra* species have the editum consisting of simple setae clearly at a distance from the base of the sella. The uncus is never fused to the tegumen as in *P. ustrinalis.* This has proved consistent with *Achyra* species from different continents. The following species were dissected for this purpose. *A. massalis* (Walker, 1859); *A. nigrirenalis* (Hampson, 1913); *A. nudalis* (Hübner, 1796); *A. rantalis* (Guenée, 1854); *A. takowensis* Maes, 1987; *A. affinitalis* (Lederer, 1863); *A. brasiliensis* (Capps, 1967); *A. coelatalis* (Walker, 1859); *A. eneanalis* (Schaus, 1923); *A. llaguenalis* Munroe, 1978; *A. occidentalis* (Packard, 1873); *A. piuralis* (Capps, 1967); *A. protealis* (Warren, 1892) and *A. similalis* (Guenée, 1854). No *Achyra* species has the uncus fused to the tegumen nor has any *Achyra* species the editum near the base of the sella. The fused uncus/tegumen occurs in *Arenochroa* Munroe, 1976; *Xanthostege* Munroe, 1976; *Lamprophaia* Caradja, 1925 just to name a few. It is also not clear at this moment if this condition evolved once or at different occasions. The placement of the editum and sella varies also greatly. The most extreme forms occur in the *Cryptosara* Martin, 1956 *Portentomorpha* Amsel, 1956 group. Because of the above reasons, retaining *Palepicorsia ustrinalis* in *Achyra* would make the latter a polyphyletic genus. Therefore, *Palepicorsia* is here considered as a valid genus.

Pyrausta Schrank, 1802

Synonyms. – *Botys* Latreille, [1802 Nov.6]; *Heliaca* Hübner, [1806] (rejected name); *Heliaca* Hübner,1808 (rejected name); *Haematia* Hübner,1818; *Heliaca* Hübner,1818 (not nomenclaturally available); *Pyraustes* Billberg,1820 (unjustified emendation); *Botis* Swainson, 1821 (unjustified emendation); *Heliaca* Hübner, 1822; *Tholeria* Hübner, 1823; *Porphyritis* Hübner, [1825] 1816; *Syllythria* Hübner, [1825] 1816; *Pyrausta* Hübner, [1825] 1816 (incorrect authorship); *Panstegia* Hübner, [1825] 1816; *Perilypa* Hübner, [1825] 1816; *Ostreophana* Sodoffski,1837 (misspelling); *Ostreophena* Sodoffski, 1837 (unnecessary replacement name for *Botis* Swainson,1821); *Rhodaria* Guenée, [1845] 1844; *Botis* Agassiz, 1847 (misspelling); *Herbula* Guenée, 1854; *Synchromia* Guenée, 1854; *Cindaphia* Lederer, 1863; *Proteroeca* Meyrick, 1884; *Sciorista* Warren, 1890; *Autocosmia* Warren, 1892; *Anthocrypta* Warren,1892; *Aplographe* Warren, 1892; *Hyaloscia* Dognin, 1908; *Trigonuncus* Amsel, 1952; *Mardinia* Amsel, 1952 **syn. n.**; *Rattana* Rose & Pajni, 1979.

***Pyrausta ferrealis* (Hampson, 1900) comb. n.** **(Fig 2, Pl. 2 Fig. A, B, C, D)**

Stenia ferrealis Hampson, 1900: 385; typelocality: Mardin.

Material examined. – Lectotype ♂, Mardin 97 Man, K. Maes Gen. Prep. nr. ♂20.412, "Lectotype | Stenia ferrealis Hmpsn | Det. K. Maes 1998" (hereby designated), (MNHU); Paralectotypes: ♀, Mardin 97 Man; K.Maes Gen.Prep.♀20.413 (MNHU); ♂? GU 812a, Typus, Stenia ferrealis Hps = Metasia acutalis Mardin, BH i. l. (MNHU); ♂, [no data] (MNHU); ♀, Mardin 91 Man (MNHU); ♀, Syrien (MNHU).

Diagnosis. – Ground colour of fore wings reddish-brown with pale yellow or white transverse lines. Hind wings pale brown to white.

Description. – External characters: Ground colour ochreous brown with white antemedian and postmedian bands. Hind wings lighter in colour, postmedian area ochreous brown as fore wings.

Head. – Frons rounded, labial palpi porrect, maxillary palpi above labial palpi, clearly visible.

Wings. – Wingspan 14–20mm; Frenulum hook simple in males, double in females. Retinaculum identical in both sexes, consisting of a series of bristles near the Cu stem.

Tympanal organs. – Praecinctorium terminally with a tuft of elongated scales; tympanal organs deeply invaginated, fornix tympani underneath the venula prima; venula prima narrow over its whole length; saccus tympani deep, well developed; venula prima extending in the venula secunda, the latter extends beyond the bottom of the saccus tympani.

Male genitalia. – Uncus simple, elongate, terminally rounded and dorsally covered with simple setae; valva with rounded tip, simple lobe-shaped sella with flattened setae, no separate editum present; aedeagus with needle-shaped spicula.

Female genitalia. – Papillae anales membranous; ostium bursae membranous, tube-like with numerous small sclerotizations, antrum strongly sclerotized continuing in a membranous and strongly coiled ductus bursae; posterior part of ductus bursae with a sclerotized band over its length; corpus bursae membranous with a rhomboid signum and an appendix bursae near the middle.

Life cycle. – Not known.

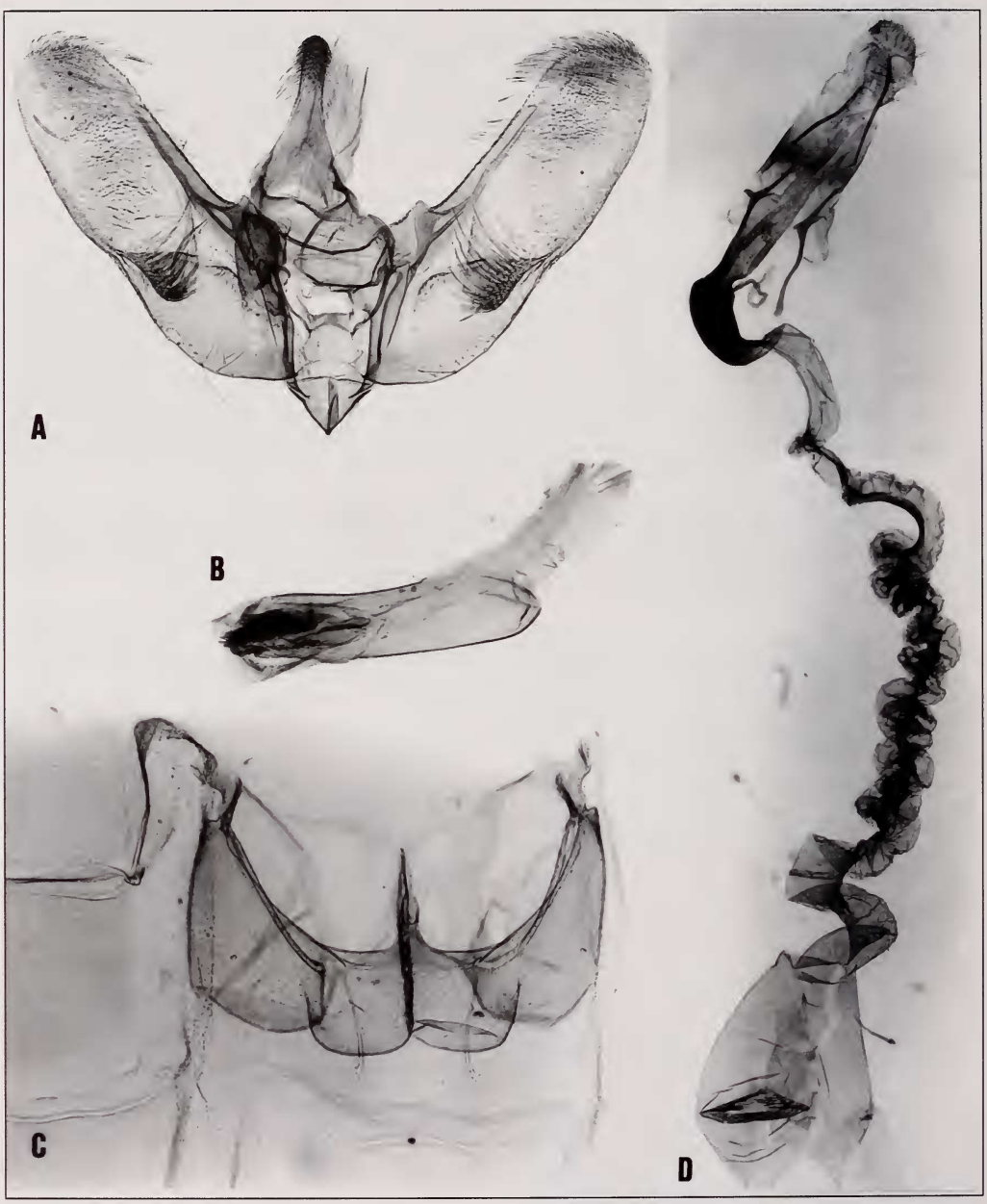
Distribution. – Mardin, Marash [Turkey].

Remarks. – Amsel (1952) established the genus *Mardinia* **syn. n.** with *Stenia ferrealis* Hampson as type species. The slides made by Amsel were not traced for study but there was ample material to make new genitalia

Fig. 2. *Pyrausta ferrealis* Hampson, Paralectotype.

slides. Amsel (1952) did not select any lecto- or paralecotypes among the type series which is done here.

The male and female genitalia of *ferrealis* show that this species belongs to the genus *Pyrausta* Schrank, 1802. The genitalia and even the tympanal organs show no differences with typical *Pyrausta* species like *P. nigralis* (Fabricius, 1781); *P. purpuralis*



Pl. 2. *Pyrausta ferrealis* Hampson, Lectotype. **A** – male genitalia, K. Maes Gen. Prep. ♂20412; **B** – aedeagus; **C** – tympanal organs; **D** – female genitalia, *Pyrausta ferrealis* Hampson, Paralectotype, K. Maes Gen. Prep. ♀20413.

(Linnaeus, 1758); *P. aurata* (Scopoli, 1763); *P. gutturalis* (Staudinger, 1880); *P. aerealis* (Hübner, 1796) or *P. castalis* (Treitschke, 1829) just to name a few. As a result, following synonymy is established: *Pyrausta* Schrank, 1802.= *Mardinia* Amsel, 1952 **syn. n.**

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